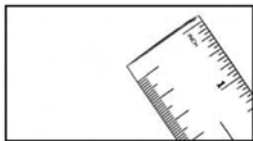


## 斜楔选择对照表 Cam Selection Matrix

	NAAMS Standards								
	Gib Cam™	Mini Cam™	Long Travel Box	Standard Box	Max Power™ Box (MP)	Milfab	NDM Die Mounts	NAC-Aerial	Long Reaching Die Mount
Inch		X	X	X		X			
Metric	X	X	X	X	X	XXX			X
Low profile	X					X			
Narrow width		X	X			X			
Short length		X		X	X	X			
Maximum slide travel			X						X
Maximum stripping force					X	X			
Nitrogen Return					X	XXX			X
Positive return	X					XXX			X
Maximum piercing force					X	XXX			X
Designed to NAAMS Standards							X	X	
Special Cam Designs Available	X	X	X	X	X	XXX			X

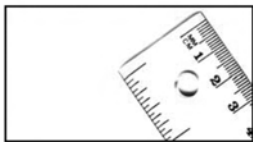
Items in the blue shaded area are included in this catalog.

表格中标记浅蓝色部分为此目录内容



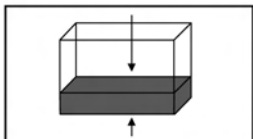
**Inch Design**—Cam is designed around the English or Inch measurement standard. Bolt and dowel holes are standard inch components.

**英制设计**—依据英制计量标准设计斜楔。螺孔和销孔均为英制标准。



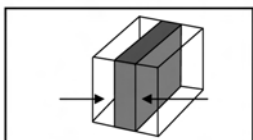
**Metric Design**—Cam is designed around the Metric measurement standard. Bolt and dowel holes are standard metric components. (May require a metric callout when placing an order)

**公制设计**—依据公制计量标准设计斜楔。螺孔和销孔均为公制标准。（下订单时可以根据要求按公制）



**Low Profile**—The overall height is minimized in a die design. The low profile cams are an excellent choice for short press stroke operations, where die space is limited.

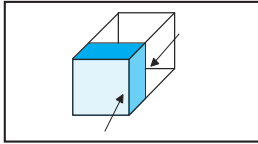
**低形体**—模具设计的整体高度减至最低。低形体斜楔在空间受限的短行程压机操作中是很好的选择。



**Narrow Width**—Reduces progression space used in a die design while allowing multiple standard cams to align side-by-side in a die.

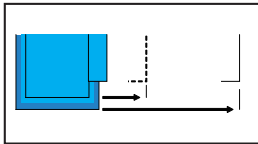
**窄宽度**—在模具设计中并排放置多个标准斜楔，减少了模具设计中所需的安装空间。

## 斜楔选择对照表 Cam Selection Matrix



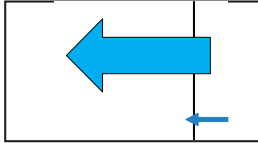
**Short Length**—The short length design is ideal for working at the edge of a die or on the inside of a large part working out. The length of the cam is minimized by an internal spring return.

**短长度**—短长度设计适合于在模具边缘或者零件内部使用。斜楔长度通过内置弹簧而变短。



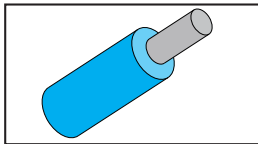
**Maximum Slide Travel/Long Reaching**—The slide travel increases by 30% or more over standard design cams. Cams are good in applications where there is a need to reach over large part flanges or stock material placement limits the proximity of the cam. □

**最大滑块行程**—滑块行程比一般标准设计斜楔增加了30%甚至更多。斜楔可以很好地用于需要到达有法兰限制的冲压件。



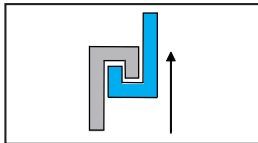
**Maximum Stripping Force**—Return spring force is 10% of working force. May require Nitrogen Return option. □

**最大退料力**—返回弹簧力是工作压力的10%，可能需要使用氮气弹簧返回。



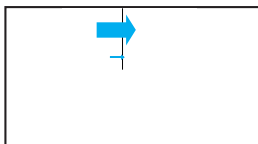
**Nitrogen Return**—Gas springs are designed into the cam to provide higher stripping forces and even slide return. Cams with nitrogen gas springs will either come standard with a gas spring or may be an option to replace or use in combination with standard mechanical springs. □

**氮气弹簧返回**—斜楔内设计了氮气弹簧以提供更大的退料力保持平稳的返回。带有氮气弹簧的斜楔既可将氮气弹簧作为标准配置，也可作为可选方案替代机械弹簧或与标准机械弹簧结合使用。



**Positive Return**—A mechanical return designed into the cam to pull the slide and tooling out of the part. Ideal for applications piercing large holes or in sticky materials where there is a chance of die damage due to a stuck punch. □

**刚性返回**—斜楔设计的刚性返回器，可以拖动滑块和冲头退出零件，适用于冲大孔或者有粘性的材料，避免由此产生的冲头被卡损坏模具。



**Maximum Piercing Force**—Large self lubricated surface areas on moving parts provides maximum piercing forces over long extended periods of cam operation. □

**最大冲裁力**—滑块部件具有的大自润滑表面，确保斜楔在工作期间具有最大冲裁力。



**Designed to NAAMS Standards**—Cams meet or exceed all of the NAAMS Global Standards for Aerial and Die Mount Cam design. □

**针对NAAMS标准设计**—达到或超过所有NAAMS斜楔的全球标准。

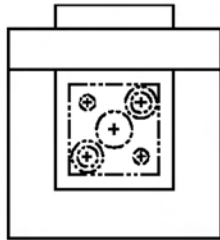


**Special Cam Designs**—If a standard cam design doesn't work for you, then give us your application specifications and we will design a special cam for you. □

**非标斜楔设计**—如果标准斜楔不能满足您的要求，我们可以根据您提供的使用要求来设计非标斜楔。

## 固定板安装方式 Retainer Mounting Methods

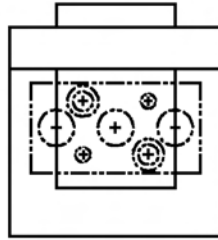
**STANDARD RETAINER**  
标准固定板



The soft mounting face of the cam slide allows for the mounting of a standard light or heavy duty punch retainer.

斜楔滑块固定安装面是软的,用于安装各类标准的轻型或重型凸模固定板。

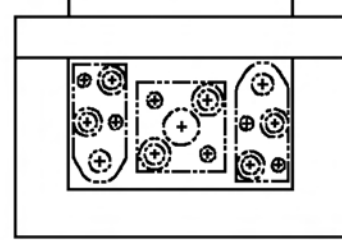
**STANDARD RETAINER**  
标准固定板



Oversized retainers work well if multiple punches are set in an even load pattern in relation to the center of the slide. Off-center loads will reduce the working tonnage rating of the cam.

多个凸模组成的大固定板,如果超出滑块安装工作面,冲裁中心应尽量与滑块中心重合,偏离中心会降低斜楔的受力等级。

**STANDARD RETAINER**  
标准固定板

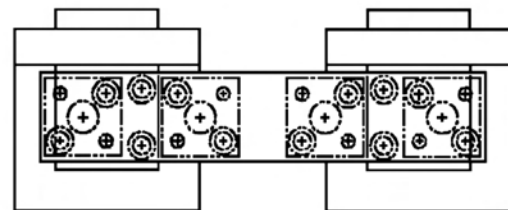
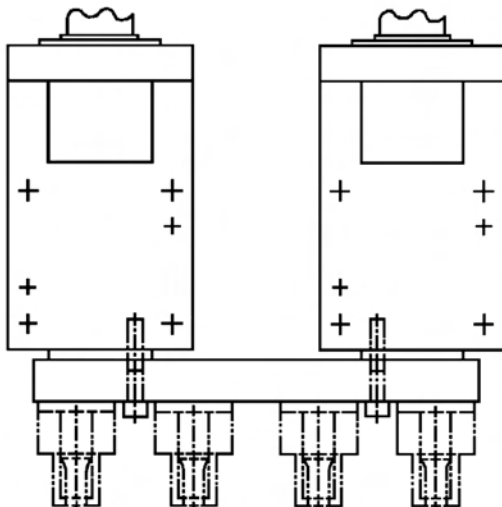


Multiple retainers easily fit our "double wide" #4L and #14L cams. Applications requiring off-center loading of the slide reduces the working tonnage rating of the cam.

多个凸模固定板非常适合“双弹簧宽系列”#4L和#14L盒式斜楔。冲裁中心滑块中心偏离,会降低斜楔受力的等级。

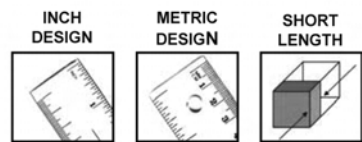
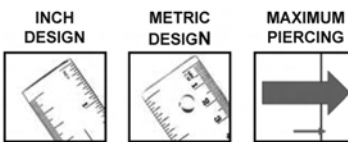
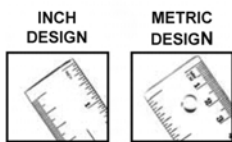
### GANG MOUNTING RETAINERS ON (2) CAMS

桥接式固定板安装在两个斜楔上



Using a bridge block fastened on the slide face of two of the same cams allows for mounting of multiple retainers. Precise timing of both cam slides ensures load sharing between the cams.

允许用连接板将多个凸模固定板一起装在两个相同型号的斜楔上,两个斜楔滑块产生的冲载力将均布共享。



### 弹簧外置 EXTERNAL SPRING

标准类型 Standard Cam Models	工作面 Face Size X in/mm	行程 Travel in/mm	加工力 Working Load tons/kN	弹簧力 Spring Force lbs/N	最大安装重量 Maximum Tooling Weight lbs/kg	斜楔重量 Approx. Cam Weight lbs/kg	弹簧代码 Spring Catalog Number	弹簧数量 Number of Springs
2L 2LHM	1.875 Sq 48 Sq	0.75 19	2.5 22.2	216 960	5 2.27	17 8	9-1614-21	1
3L 3LHM	2.5 Sq 63 Sq	1.625 42	4 35.6	444 1975	8 3.64	42 20	9-2020-21	1
4L 4LHM	2.75x4.75 70x121	1.625 45	8 71.2	888 3950	12 5.45	78 36	9-2020-21	2
5L 5LHM	3.25 Sq 82 Sq	2.5 64	7 62.3	652 2900	10 4.55	93 43	9-2428-21	1

### 弹簧内置 INTERNAL SPRING

\* Combination Spring 组合弹簧

标准类型 Standard Cam Models	工作面 Face Size X in/mm	行程 Travel in/mm	加工力 Working Load tons/kN	弹簧力 Spring Force lbs/N	最大安装重量 Maximum Tooling Weight lbs/kg	斜楔重量 Approx. Cam Weight lbs/kg	弹簧代码 Spring Catalog Number	弹簧数量 Number of Springs
22L 22LMM	1.875 Sq 48 Sq	.75 19	2.5 22.2	258 1148	5 2.27	15 33.1	9-1612-21	1
23L 23LMM	2.50 Sq 63 Sq	1.625 42	4 35.6	415 1846	8 3.64	41 90.4	9-2020-21	1
24MP	3.0 x 4.75 76 x 120	1.625 41.3	12 106.8	2,141 9,516	12 5.45	125 56.7	C.909.025* 9-2428-26	2 2
24MP-XW	3.0 x 8.0 76 x 203	1.625 41.3	20 178	3,213 14,280	20 9.09	183 83	C.090.025* 9-2428-26	3 3

Calculated stroke, tonnage and wear curves are presented as a guideline for design and maintenance only. No warranty exists, either expressed or implied, as a result of the application, as it may relate to the information provided.

计算出来的行程、重量、和磨损曲线，只供作为设计和维护保养时的指导值。对于这些数值的应用而得到的结果，本公司不提供书面的或隐含的担保。因为这些数值的得出，可能涉及到贵方提供的信息。

NOTE: \*The cam slide has .0005"-.001"(0.0127-0.0254mm) clearance between each side of the slide and body to allow for lubrication and heat dissipation. Tighter tolerances are available upon request. □

说明: \*滑块与底座的间隙有0.005"-0.001"(0.0127-0.0254mm),保证润滑和散热, 根据客户要求可提供更小的间隙。



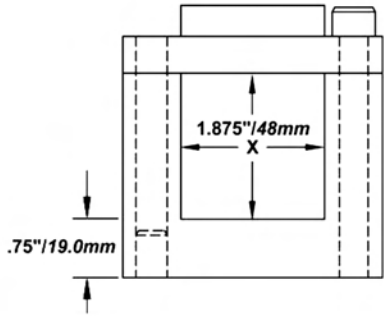
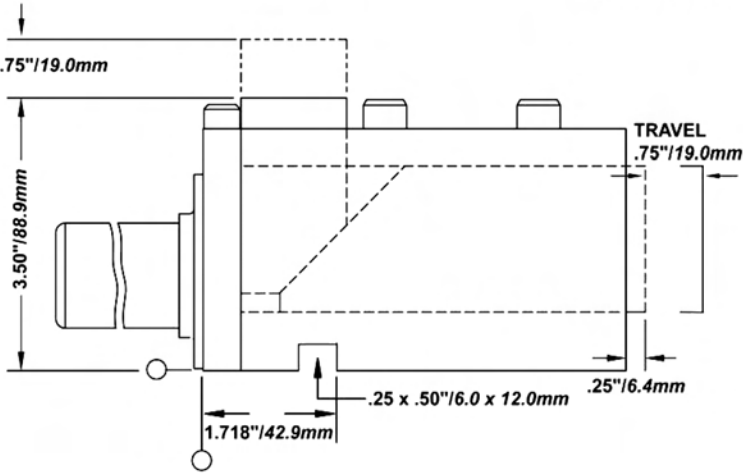
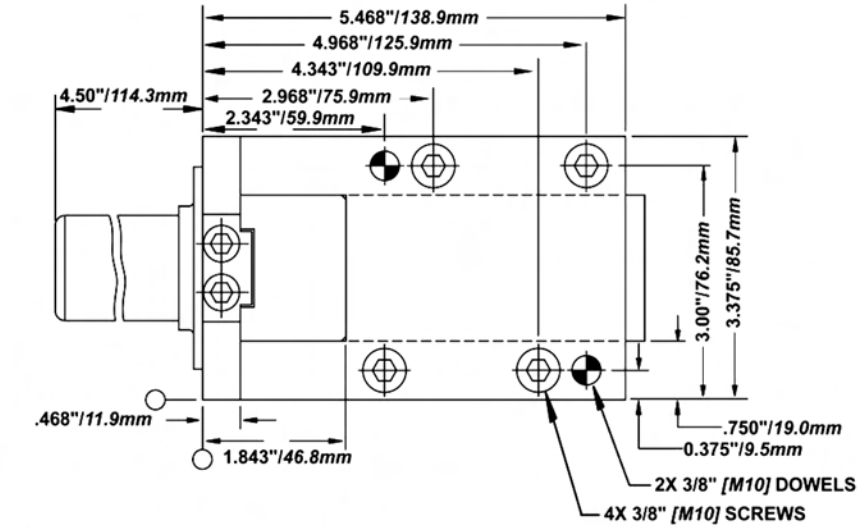
Order

Standard Cam Models

2L (英制 Inch)

2LHM (公制 Metric)

**2L/2LHM**



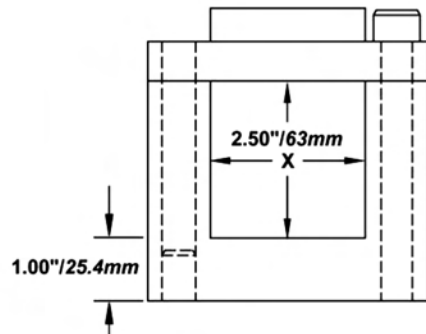
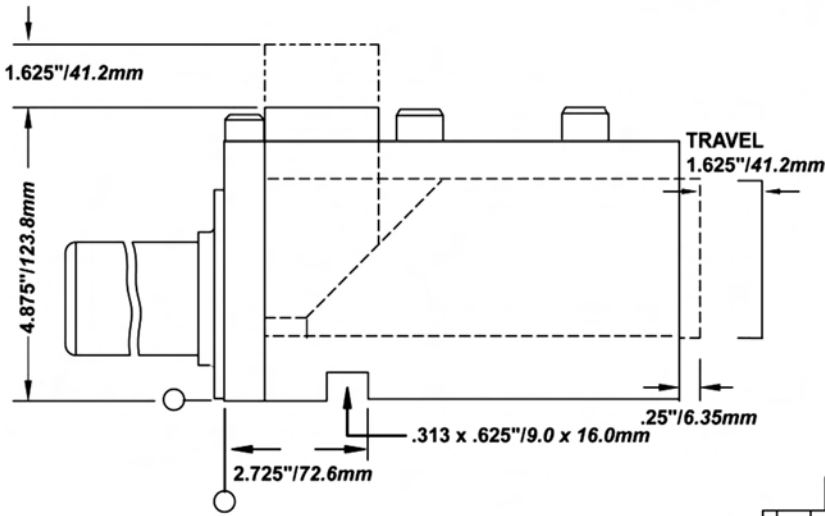
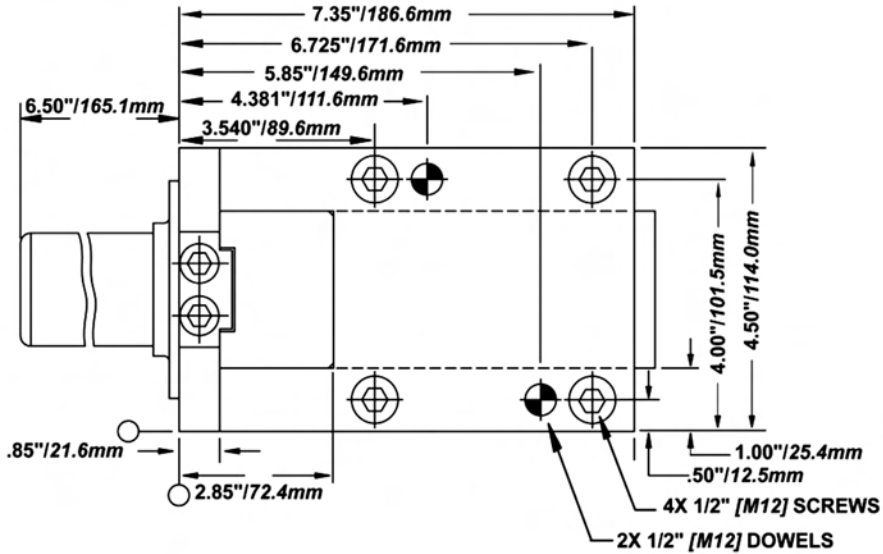
Cam models are designed in both inch and metric. Listed dimensions may not convert directly into the other standard. All dimensions are for reference only and no tolerance is stated or implied.

斜楔采用英制和公制设计，所注尺寸不要直接转换。所注尺寸仅供参考，公差没有被注出或者被隐含。

Box Cam  
2L

请向客户服务部索取由本公司网站或光盘提供的设计模板。  
Ask Customer Service for design templates on our website or CD.

**3L/ 3LHM**

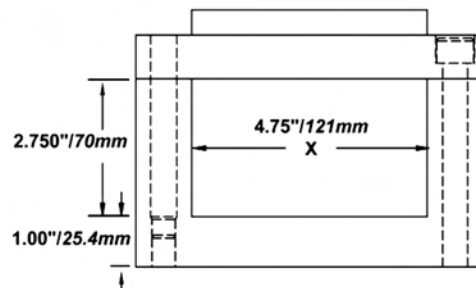
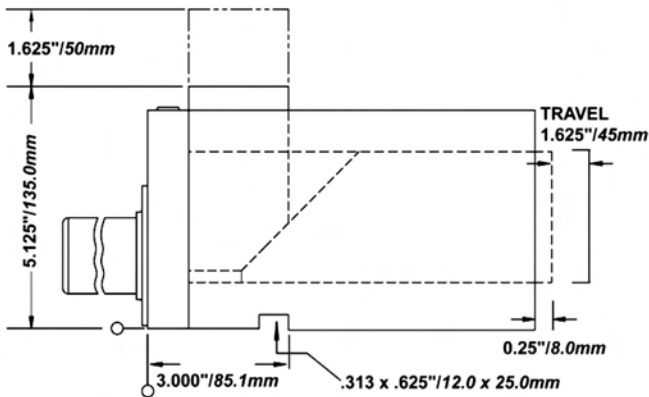
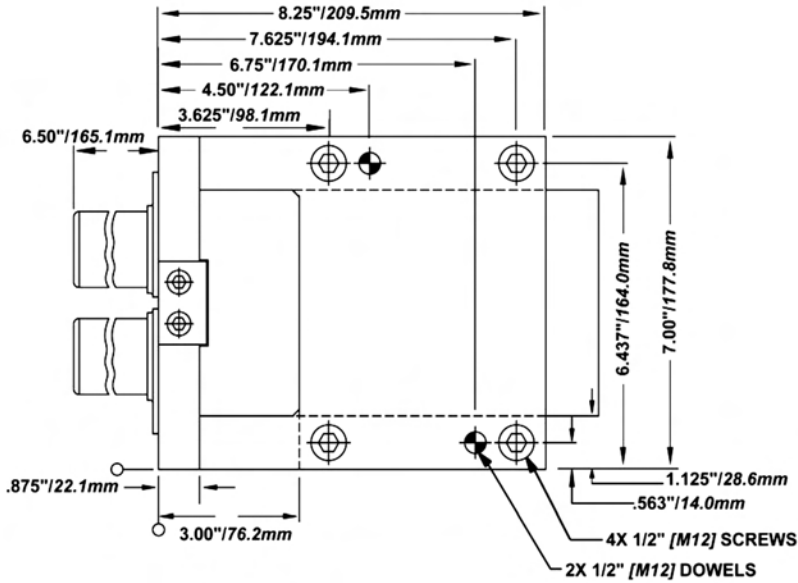


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## 4L/ 4LHM



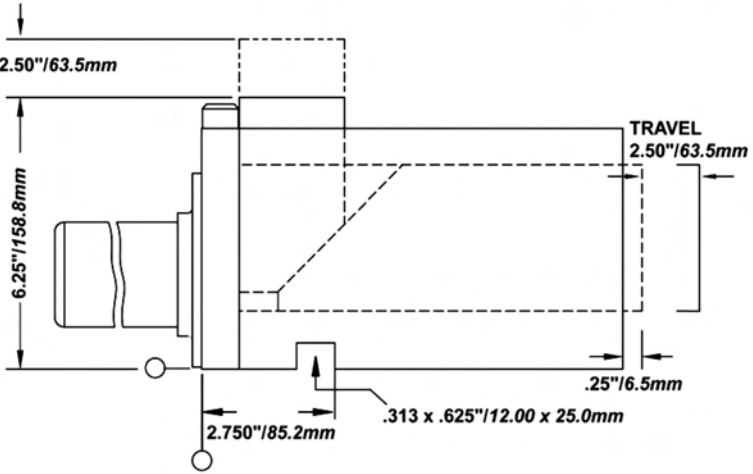
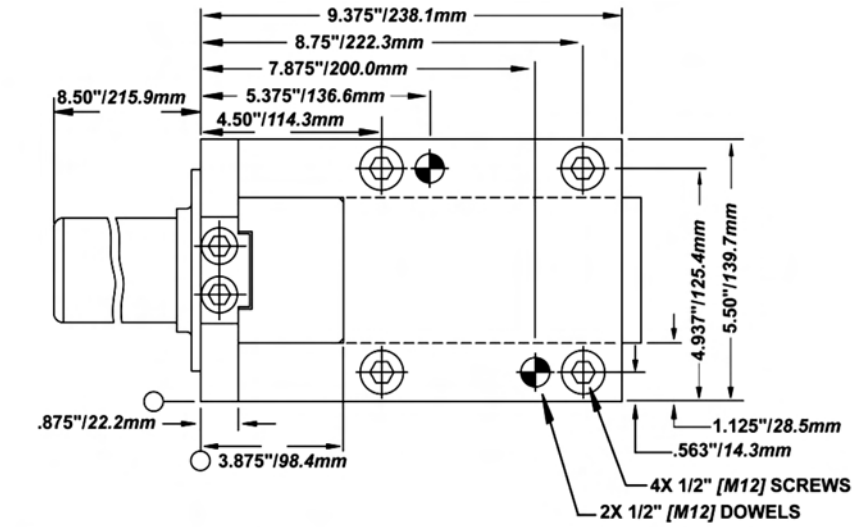
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Box Cam  
4L

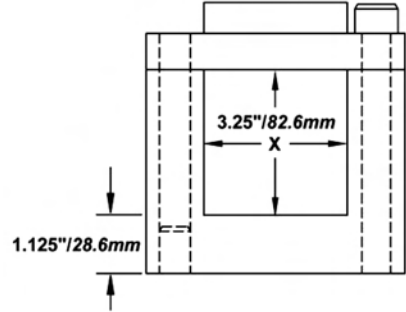
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**5L/ 5LHM**



Cam models are designed in both inch and metric. Listed dimensions may not convert directly into the other standard. All dimensions are for reference only and no tolerance is stated or implied.

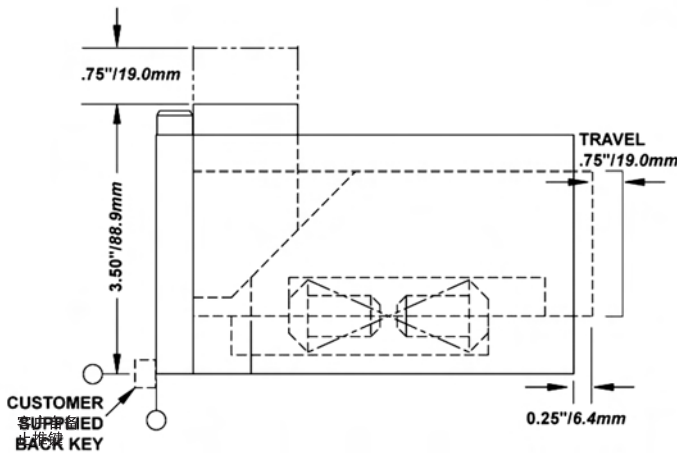
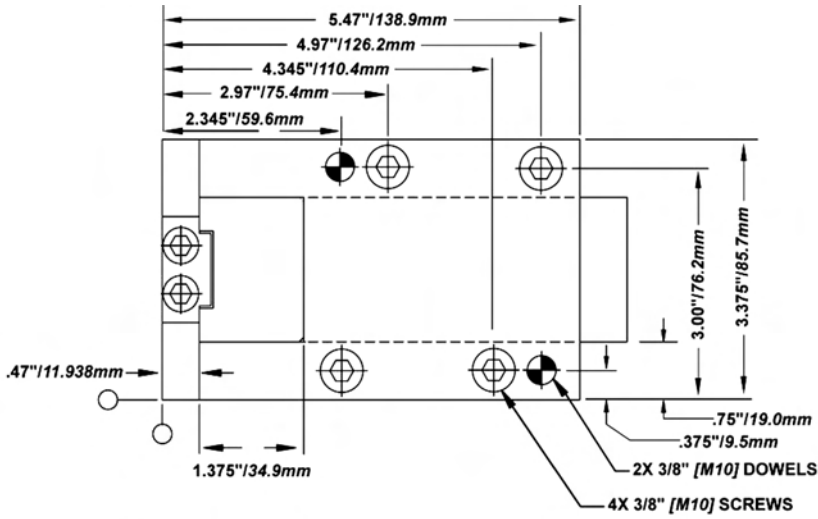
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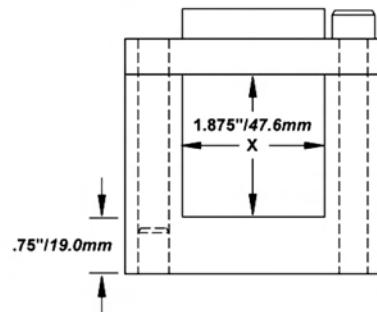


## 22L/22LMM



Cam models are designed in both inch and metric. Listed dimensions may not convert directly into the other standard. All dimensions are for reference only and no tolerance is stated or implied.

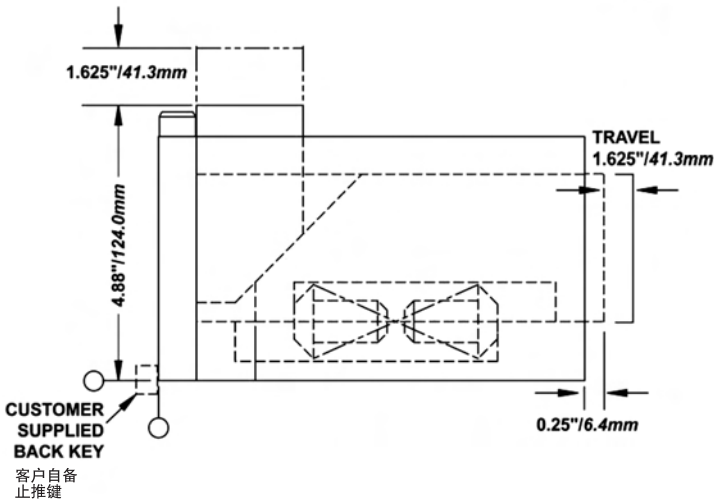
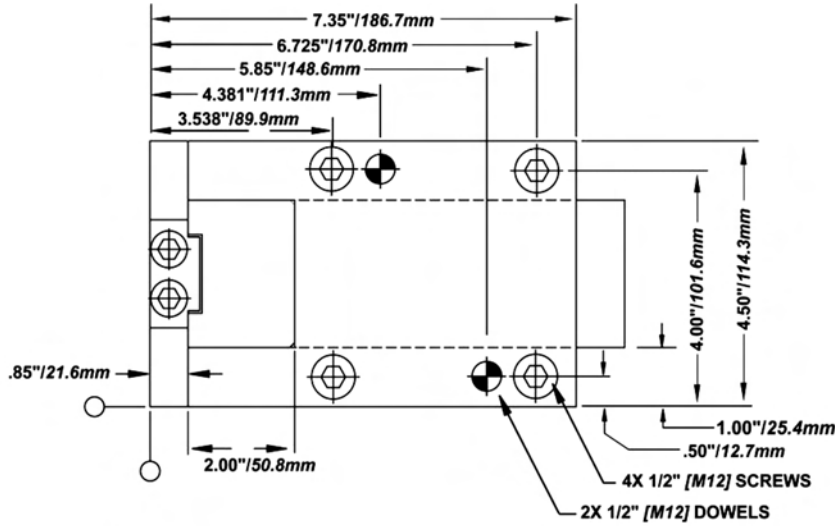
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Box Cam  
22L

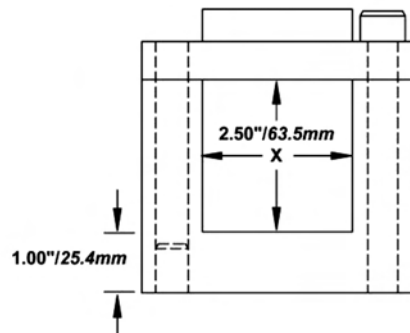
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**23L/23LMM**



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Ask Customer Service for design templates on our website or CD.



## Product Features

The Maximum Power Cam™ is designed for tight spaces where length and height is limited. It's a compact high power cam with a maximum working load for applications requiring pierced holes through thicker steel like automotive chassis frame rails. You will find the bronze wear plates with graphite inserts provide a premium wear surface for the slide to move along. The maximum stripping power is derived from a combination mechanical and nitrogen spring slide return design. The Maximum Power Cam™ is a cam with everything a large automotive type cam has except the large size.



### 产品特性:

大功率重载盒式斜楔有效地控制了斜楔的长度和高度，设计结构紧凑。该斜楔可承受大载荷，适用于汽车车架厚板料冲裁，斜楔内侧有高性能的铜合金镶石墨的导板，确保滑动自如。滑块采用机械弹簧和氮气弹簧组合，返回强劲有力，非常适合于各类大型汽车模具。

标准类型 Standard Cam Models	工作面 Face Size X in/mm	行程 Travel in/mm	加工力 Working Load tons/kN	弹簧力 Spring Force lbs/N	最大安装重量 Maximum Tooling Weight lbs/kg	斜楔重量 Approx. Cam Weight lbs/kg	弹簧代码 Spring Catalog Number	弹簧数量 Number of Springs
24MP	3.0 x 4.75	1.625	12	2,141	12	125	C.909.025*	2
	76 x 120	41.3	106.8	9,516	5.45	56.7	9-2428-26*	2
24MP-XW	3.0 x 8.0	1.625	20	3,213	20	183	C.090.025*	2
	76 x 203	41.3	178	14,280	9.09	83	9-2428-26*	2

\* Combination Spring 组合弹簧

### NOTES:

- ◆ Nitrogen and mechanical spring combination.
- ◆ Cam is designed in hard inch. Metric dimensions are for reference only.
- ◆ The cam slide has .0005" – .001" (0.0127 – .0254mm) clearance between each side of the slide and body to allow for lubrication and heat dissipation. Tighter tolerances are available upon request.

### 说明:

- ◆ 氮气弹簧和机械弹簧组合。
- ◆ 采用的英制,公制尺寸仅供参照。
- ◆ 滑块与底座的间隙有0.005"-0.001"(0.0127-0.0254mm),

保证润滑和散热， 根据客户要求可提供更小的间隙。

Calculated stroke, tonnage and wear curves are presented as a guideline for design and maintenance only. No warranty exists, either expressed or implied, as a result of the application, as it may relate to the information provided.

计算出来的行程、重量，和磨损曲线，只供作为设计和维护保养时的指导值。对于这些数值的应用而得到的结果，本公司不提供书面的或隐含的担保。因为这些数值的得出，可能涉及到贵方提供的信息。



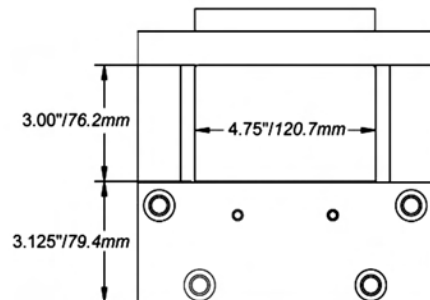
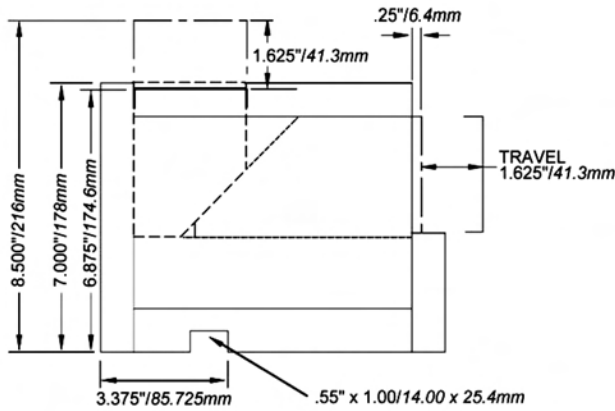
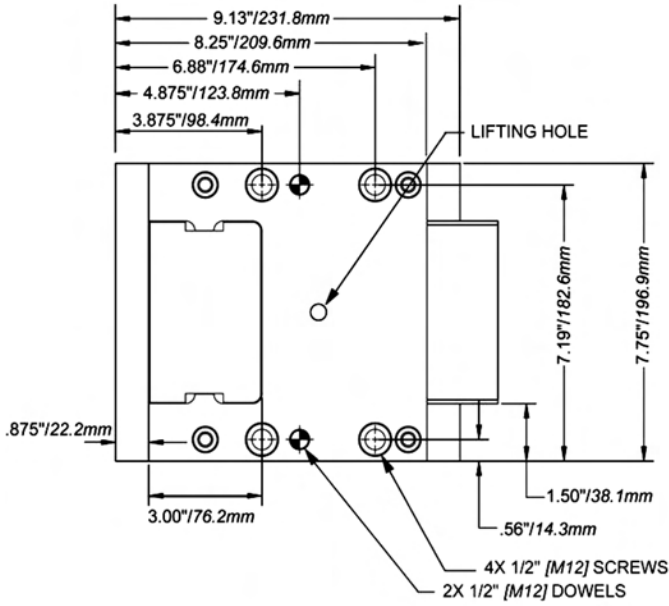
Order

Standard Cam Models

24MP  
24MP - XW

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## 24MP

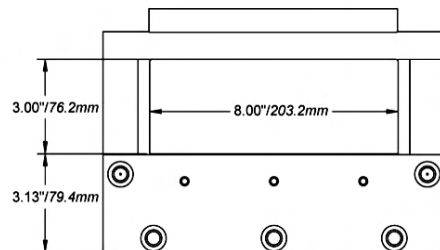
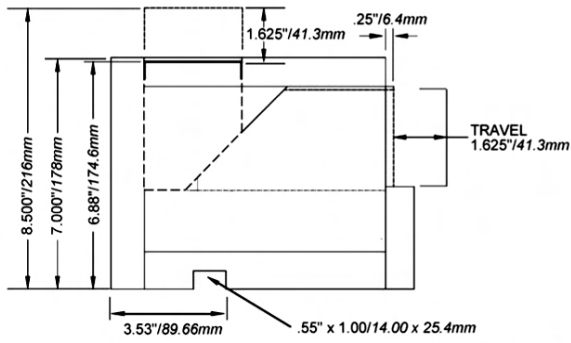
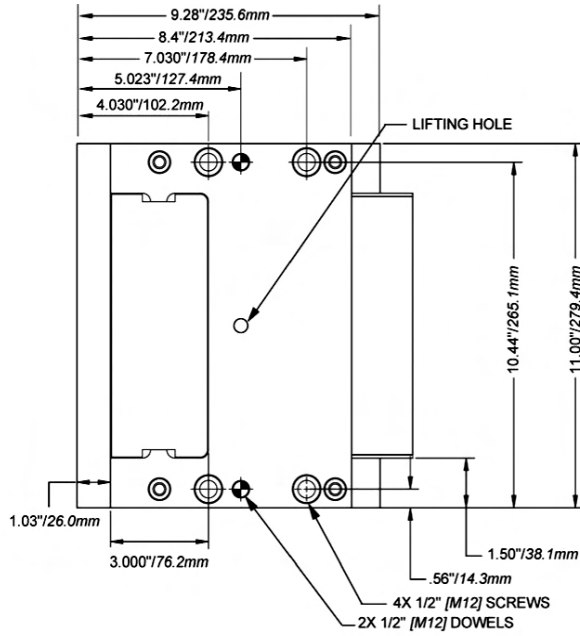


All dimensions are for reference only and no tolerance is stated or implied.

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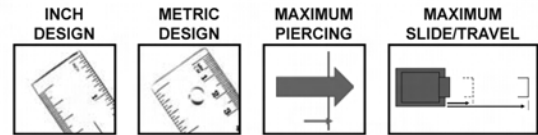
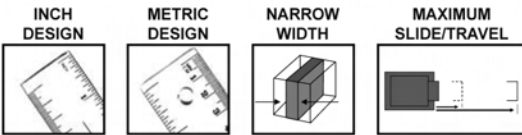
## 24MP-XW



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Box Cam  
24MP



标准类型 Standard Cam Models	工作面 Face Size X in/mm	行程 Travel in/mm	加工力 Working Load tons/kN	弹簧力 Spring Force lbs/N	最大安装重量 Maximum Tooling Weight lbs/kg	斜楔重量 Approx. Cam Weight lbs/kg	弹簧代码 Spring Catalog Number	弹簧数量 Number of Springs
11 L 11 LMM	1.875 Sq 47.6 Sq	2 51	5 44.5	199 885	4 1.82	29 13.16	9-1632-21*	1
12 L 12LMM	2.125 Sq 54 Sq	2.50 64	7 62.3	314 1397	5 2.27	50 22.68	9-2040-21*	1
13 L 13LMM	2.50 Sq 63.5 Sq	3.25 83	11 97.9	476 2117	8 3.64	100 45.37	9-2448-21*	2
14 L 14LMM	2.875 x 4.75 73 x 120.7	3.25 83	16 142.3	952 4234	12 5.45	153 69.42	9-2448-21*	2
15 L 15LMM	3.25 Sq 82.6 Sq	3.25 83	12 106.8	738 3283	10 4.55	140 63.52	9-3248-21*	1

计算出来的行程、重量，和磨损曲线，只供作为设计和维护保养时的指导值。对于这些数值的应用而得到的结果，本公司不提供书面的或隐含的担保。因为这些数值的得出，可能涉及到贵方提供的信息。

*Calculated stroke, tonnage and wear curves are presented as a guideline for design and maintenance only. No warranty exists, either expressed or implied, as a result of the application, as it may relate to the information provided.*

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**说明:**

◆ 滑块与底座的间隙有0.005"-0.001"(0.0127-0.0254mm)，保证润滑和散热，根据客户要求可提供更小的间隙。

**NOTE:**

◆ The cam slide has .0005" - .001" (.0127 - .0254mm) clearance between each side of the slide and body to allow for lubrication and heat dissipation. Tighter tolerances are available upon request.

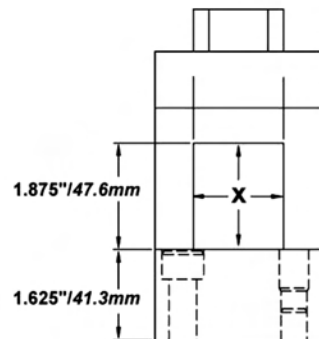
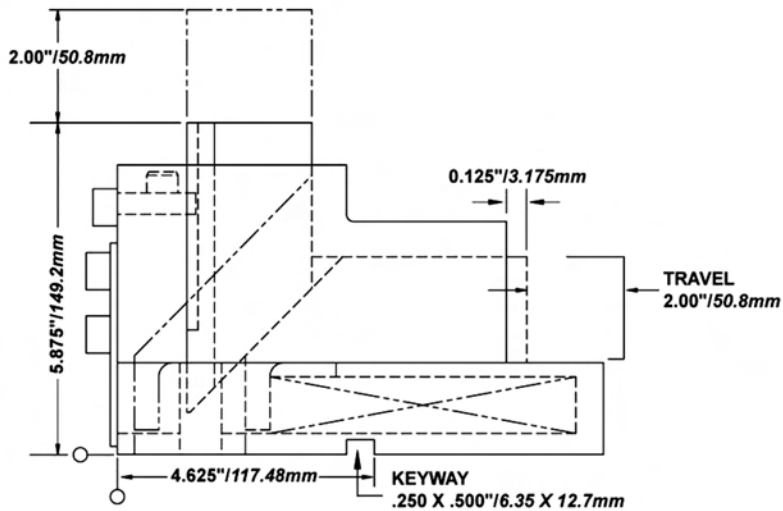
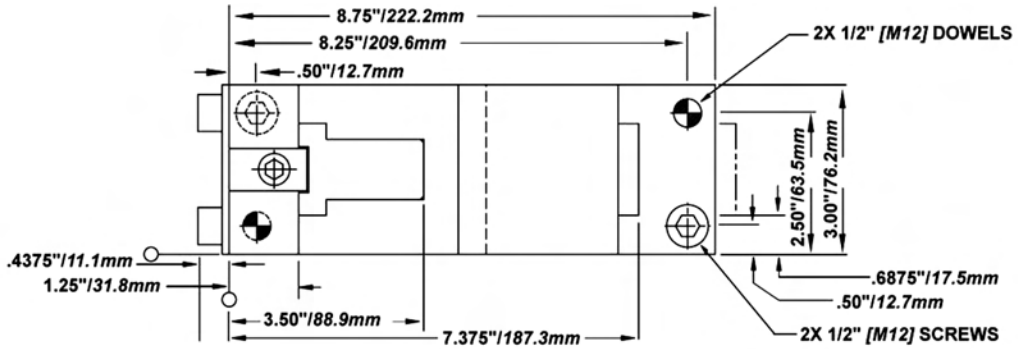


Order

Standard Cam Models

**11L** (英制 Inch)  
**11LMM** (公制 Metric)

## 11L/11LMM



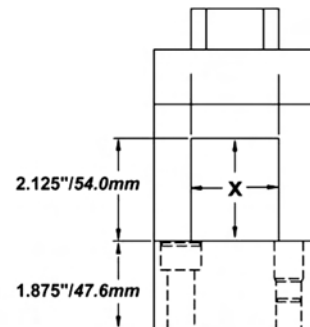
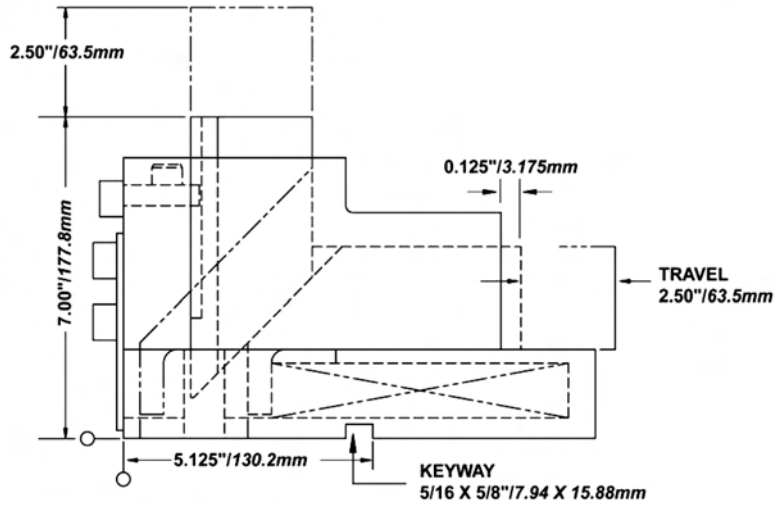
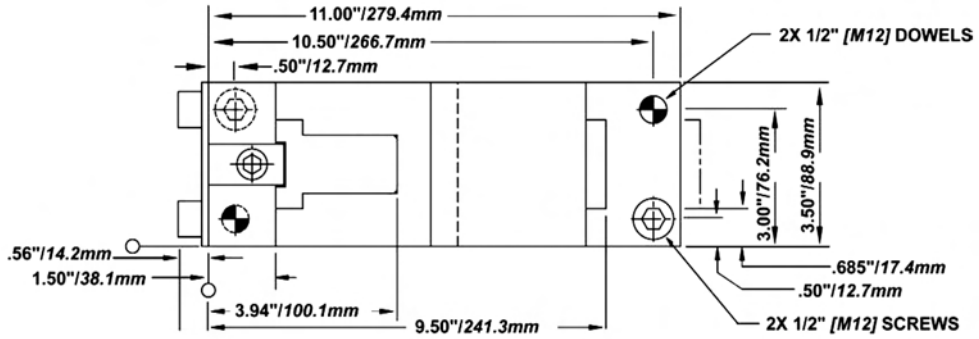
Cam models are designed in both inch and metric. Listed dimensions may not convert directly into the other standard. All dimensions are for reference only and no tolerance is stated or implied.

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Box Cam  
11L

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## 12L/12LMM



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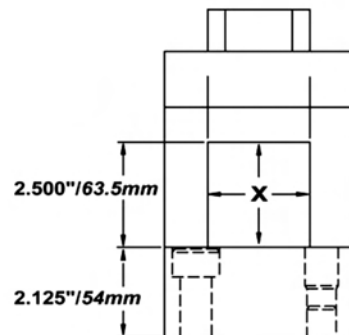
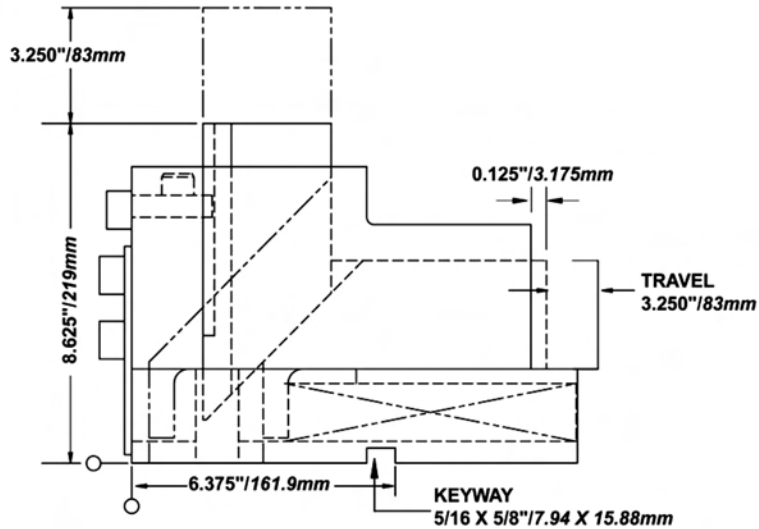
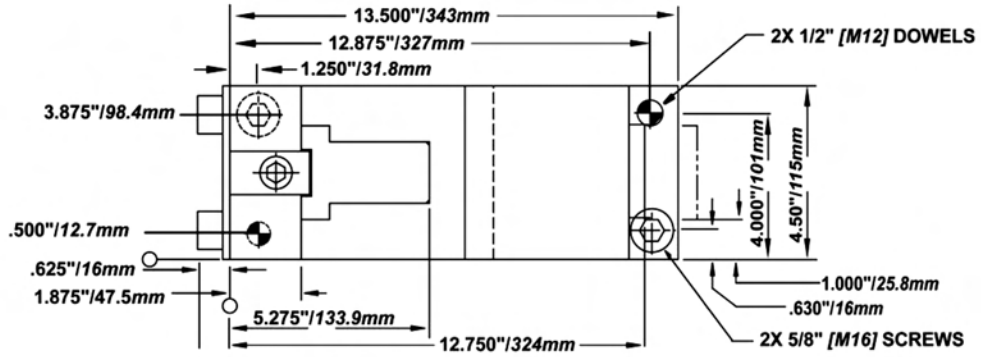
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As

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## 13L/13LMM

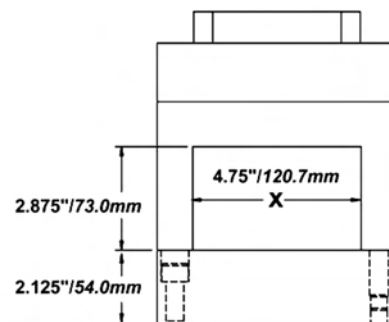
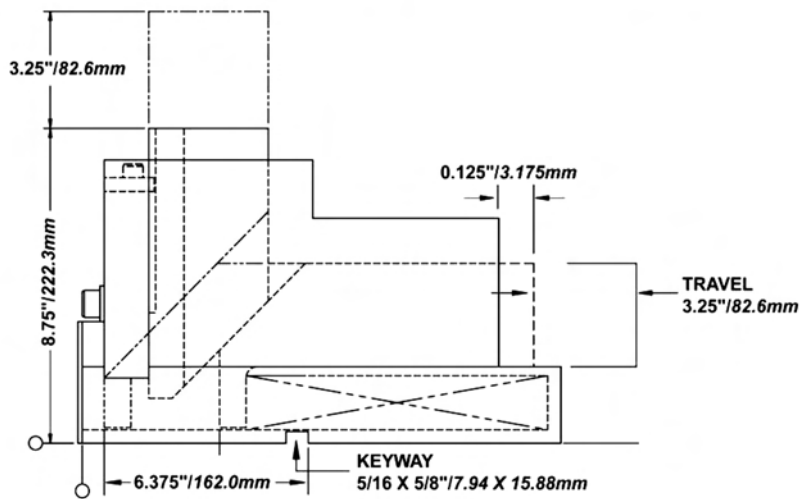
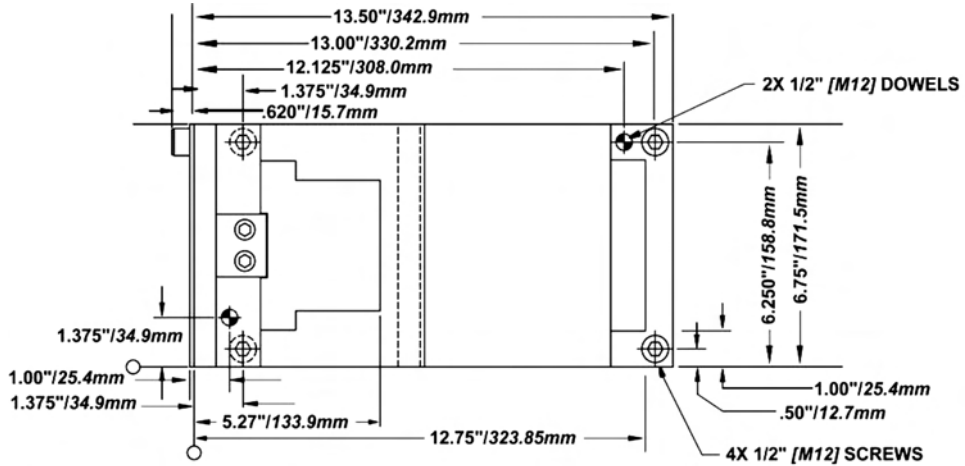


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Box Cam  
13L

## 14L/14LMM

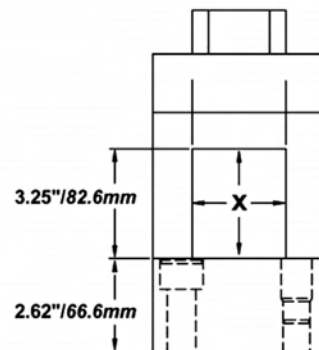
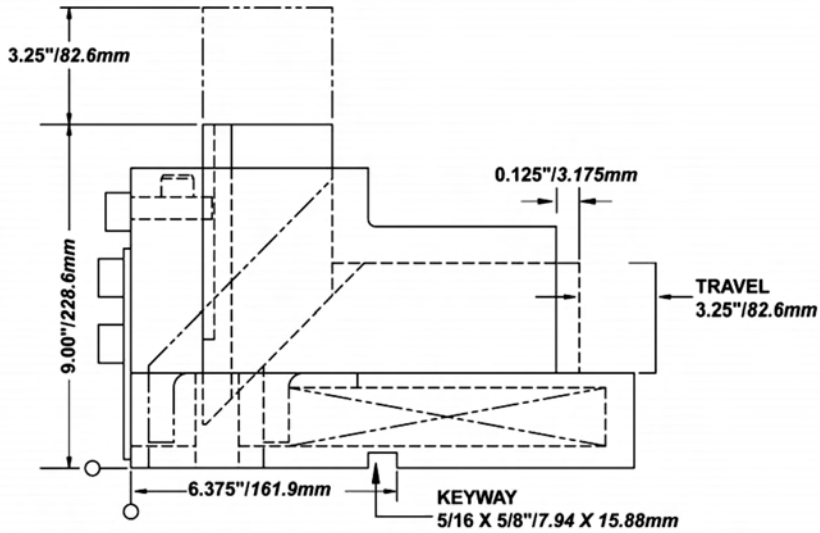
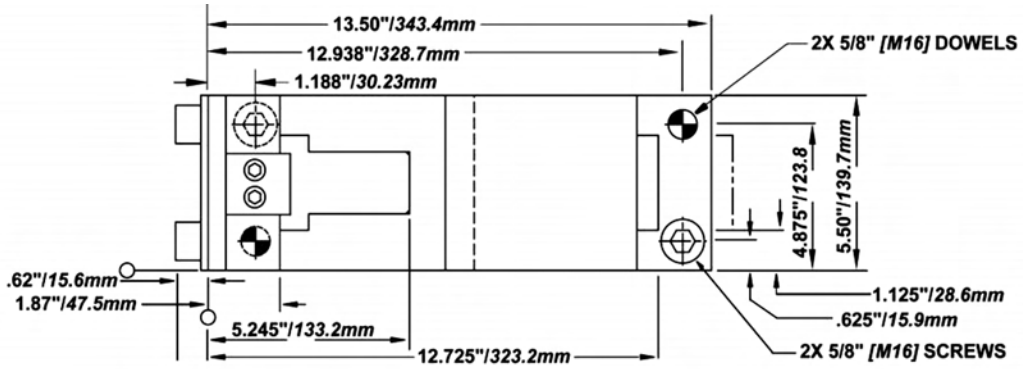


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## 15L/15LMM



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Box Cam  
15L

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